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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/651,589	08/29/2003	Vincent C. Moyer	10021040-1	9284

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EXAMINER	
GOKHALE, SAMEER K	

ART UNIT	PAPER NUMBER
2629	

DATE MAILED: 10/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/651,589	MOYER, VINCENT C.	
	Examiner	Art Unit	
	Sameer K. Gokhale	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 July 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on July 24, 2006 has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1 - 6,8-11,17-21, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kobachi et al. (US 6,326,948) (hereafter, "Kobachi").

Regarding claim 1, Kobachi teaches an input device comprising: a captive disc (Fig. 1, item 1) movably suspended over a sensor (Fig.1, see col. 8, lines 6-7), said captive disc having an active surface (Fig. 1, item 3) facing said sensor; wherein said sensor is adapted to take successive images of the active surface of said captive disc (see Fig. 7A and 7B, and see col. 9, lines 50-63, where the reflected light is imaged by the photodiodes PD1 to PD4, therefore it is taking successive images of the active

surface); a horizontal spring allowing resisitive movement of said captive disc in horizontal direction Fig. 1, item 2, or Fig. 27, spring 2). However, Kobachi does not teach a single embodiment featuring a horizontal spring as discussed above, as well as a vertical spring allowing resistive movement of said captive disc in vertical direction.

However, Kobachi does teach an embodiment with a vertical spring allowing resisitive movement of a captive disc in the vertical direction (see Fig. 35). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the vertical spring and the spacing created between the sensor and captive surface of Kobachi's embodiment on Fig. 35 into the first embodiment of Kobachi on Fig. 1, where the motivation to combine is to create a device that allows movement in the X and Y direction in order to detect X-Y movements of a cursor control device, and also to allow movements in the vertical direction such that an additional type of input in the Z-direction can be sensed.

Regarding claim 2, Kobachi further teaches a device further comprising a frame (Fig. 1, item 6) housing said captive disc; and said horizontal spring (Fig. 1, item 2, see col. 8, 19-20) adapted to center said captive disc within said frame (Fig. 1).

Regarding claim 3, Kobachi further teaches a device wherein said captive disc is substantially flat (Fig. 1, here the disc is substantially flat).

Regarding claim 4, Kobachi further teaches a device wherein said captive disc has convex shape (Fig. 1, the top surface of item 1 is convex relative to the sensor S, also see Fig. 16 for an embodiment where the top surface is convex relative to the user's finger).

Regarding claim 5, Kobachi further teaches a device wherein said active surface comprises navigation area (Fig. 1, where the surface of item 3 is the navigation area) and border area (the bottom surface of item 1), said border area generally surrounding said navigation area (Fig. 1, it is inherent that the surface area portion of item 1 that surrounds item 3).

Regarding claim 6, Kobachi further teaches a device wherein the navigation area has a predetermined pattern (see col. 9, lines 55-63).

Regarding claim 8, Kobachi further teaches a device wherein said sensor is configured to sense images proximal to a focal plane (col. 9, lines 41-48, it is inherent that the plane perpendicular to the optical axis that is mentioned here is the focal plane).

Regarding claim 9, Kobachi further teaches a device further comprising an activation switch (Fig. 31, item 40) adapted to detect pressure on said captive disc (see col. 17, lines 25-28).

Regarding claim 10, Kobachi further teaches a device further comprising a selection switch (Fig. 31, item 40) adapted to detect user selection (see col. 17, lines 47-53, it is inherent that item 40 can be operated as a switch from the 2-dimensional plane to the 3-dimensional plane where a user makes a selection to move in the Z-direction by applying pressure to item 40).

Regarding claim 11, Kobachi further teaches a device further comprising a light source (Fig. 1, item LD) adapted to provide illumination on the active surface (col. 8, lines 26-28).

Regarding claim 17, Kobachi teaches an electronic apparatus comprising: a screen (col. 1, line 7) displaying information including an icon (col. 1, line 7); an input device for controlling the icon (col. 1, line 6), said input device comprising: a captive disc (Fig. 1, item 1) movably suspended over said sensor (Fig. 1), said captive disc having an active surface (Fig. 1, item 3) facing said sensor; wherein said sensor is adapted to take successive images of the active surface of said captive disc (see Fig. 7A and 7B, and see col. 9, lines 50-63, where the reflected light is imaged by the photodiodes PD1 to PD4, therefore it is taking successive images of the active surface); a horizontal spring allowing resistive movement of said captive disc in horizontal direction Fig. 1, item 2, or Fig. 27, spring 2). However, Kobachi does not teach a single

embodiment featuring a horizontal spring as discussed above, as well as a vertical spring allowing resistive movement of said captive disc in vertical direction.

However, Kobachi does teach an embodiment with a vertical spring allowing resisitive movement of a captive disc in the vertical direction (see Fig. 35). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the vertical spring and the spacing created between the sensor and captive surface of Kobachi's embodiment on Fig. 35 into the first embodiment of Kobachi on Fig. 1, where the motivation to combine is to create a device that allows movement in the X and Y direction in order to detect X-Y movements of a cursor control device, and also to allow movements in the vertical direction such that an additional type of input in the Z-direction can be sensed.

Regarding claim 18, Kobachi further teaches an apparatus further comprising: frame housing (Fig. 1, item 6) said captive disc; and said horizontal spring (Fig. 1, item 2) adapted to center said captive disc within said frame (Fig. 1)

Regarding claim 19, Kobachi further teaches an apparatus wherein said captive disc is substantially flat (Fig. 1, here the disc shown is substantially flat).

Regarding claim 20, Kobachi teaches an apparatus wherein said captive disc has convex shape (Fig. 1, the top surface of item 1 is convex relative to the sensor S, also

see Fig. 16 for an embodiment where the top surface is convex relative to the user's finger).

Regarding claim 21, Kobachi teaches an apparatus wherein said active surface comprises navigation area (Fig. 1, where the surface of item 3 is the navigation area) and border area (the bottom surface of item 1), said border area generally surrounding said navigation area (Fig. 1, it is inherent that the surface area portion of item 1 that surrounds item 3).

Regarding claim 23, Kobachi teaches an apparatus wherein said sensor is adapted to sense images proximal to a focal area (col. 9, lines 41-48, it is inherent that the plane perpendicular to the optical axis that is mentioned here is the focal plane).

4. Claims 7, 12-16, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kobachi in view of Sayag (US 5,801,681).

Regarding claim 7, Kobachi teaches the limitations of claim 1 and 2 as discussed above. However, Kobachi does not teach a focusing lens adapted to focus light from a portion of the active surface to said sensor when the active surface is proximal to a focal plane.

However, Sayag does teach an optical input device comprising a focusing lens (Fig. 1, lens 108) adapted to focus light from a portion of an active surface (Fig. 1, the

surface of finger 102) to a sensor (Fig. 1, sensor 110) when the active surface is proximal to a focal plane (Fig. 1, here active surface 102 is fixed in the focal plane).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teachings of Sayag into the teaching of Kobachi's to include a focusing lens between the active surface and the sensor where the motivation to combine is to reduce the image size of the item to be detected.

Regarding claim 12, Kobachi in view of itself teaches an input device comprising: a captive disc (Fig. 1, item 1) movably suspended over said sensor (Fig.1, see col. 8, lines 6-7), said captive disc having an active surface (Fig. 1, item 3) facing said sensor; wherein said sensor is adapted to take successive images of the active surface of said captive disc (see Fig. 7A and 7B, and see col. 9, lines 50-63, where the reflected light is imaged by the photodiodes PD1 to PD4, therefore it is taking successive images of the active surface); an illuminant (Fig. 1, item LD) adapted to provide light toward the active surface (col. 8, lines 26-28); a horizontal spring (Fig. 1, item 2) adapted to center said captive disc (Fig. 1); and a vertical spring allowing resistive movement of said captive disc in vertical direction (as discussed above in regards to claim 1).

However, Kobachi does not teach a focusing lens for focusing light from the active surface onto said sensor.

However, Sayag does teach an optical input device comprising a focusing lens (Fig. 1, item 50) adapted to focus light from a portion of an active surface (Fig. 1, item 11) to a sensor (Fig. 1, item 60).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teachings of Sayag into the teaching of Kobachi's to include a focusing lens between the active surface and the sensor where the motivation to combine is to reduce the image size of the item to be detected.

Regarding claim 13, Kobachi further teaches a device wherein said captive disc is substantially flat (Fig. 1).

Regarding claim 14, Kobachi further teaches a device wherein said captive disc has convex shape. (Fig. 1, the top surface of item 1 is convex relative to the sensor S, also see Fig. 16 for an embodiment where the top surface is convex relative to the user's finger).

Regarding claim 15, Kobachi further teaches a device wherein said active surface comprises navigation area (Fig. 1, where the surface of item 3 is the navigation area) and border area (the bottom surface of item 1), said border area generally surrounding said navigation area (Fig. 1, it is inherent that the surface area portion of item 1 that surrounds item 3).

Regarding claim 16, Kobachi further teaches a device further comprising a selection switch (Fig. 35, item 123) adapted to detect user selection (Fig. 35, where the detection of a user pushing down is a switch function).

Regarding claim 22, Kobachi teaches the limitations of claim 18 as discussed above, however Kobachi does not teach an apparatus further comprising a focusing lens adapted to focus the active surface to said sensor when the active surface is proximal to a focal plane.

However, Sayag does teach an apparatus comprising a focusing lens (Fig. 1, item 50) adapted to focus light from a portion of an active surface (Fig. 1, item 11) to a sensor (Fig. 1, item 60).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teachings of Sayag into the teaching of Kobachi's to include a focusing lens between the active surface and the sensor where the motivation to combine is to reduce the image size of the item to be detected.

Response to Arguments

5. Applicant's arguments filed February 3, 2006 have been fully considered but they are not persuasive. Applicant (middle of page 7) argued that Kobachi fails to teach taking an image of the captive disc. Examiner respectfully disagrees. Kobachi teaches on col. 9, lines 50-63, that the reflected light is imaged by the photodiodes PD1 to PD4, therefore it is taking successive images of the active surface of the captive disc.

Applicant (middle of page 10) argued in regards to claim 7 that the cited prior art fails to teach a vertical spring . Examiner respectfully disagrees. Figure 35 of Kobachi

shows a vertical spring allowing resistive movement in the vertical direction. Therefore, Examiner believes the prior art fairly reads on the claimed limitations.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sameer K. Gokhale whose telephone number is (571) 272-5553. The examiner can normally be reached on M-F 8:00 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amr Awad can be reached on (571) 272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SKG
September 28, 2006

Sameer Gokhale
Examiner
Art Unit 2629

AMR A. AWAD
SUPERVISORY PATENT EXAMINER